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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/677,304	09/29/2000	Yukihisa Takeuchi	789_056	2413

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EXAMINER
DOUGHERTY, THOMAS M

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 11/23/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/677,304	Applicant(s) TAKEUCHI ET AL.	
	Examiner Thomas M. Dougherty	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 September 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6,7,9* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakashima et al. (US 4,700,177). Nakashima shows a piezoelectric/electrostrictive device (e.g. fig. 10) comprising: a pair of mutually opposing thin plate sections (31, 32) made of metal (col. 3, l. 45) and a fixation section (at left of thin plate sections) for supporting said thin plate sections (31, 32); an object (37) attached to forward end portions of said pair of thin plate sections (31, 32); and one or more piezoelectric/electrostrictive elements (35, 36) arranged on at least one thin plate section (31 or 32 or both) of said pair of thin plate sections (31, 32), wherein: an areal size of a surface of said object (37) opposed to said thin plate section is larger than an areal size of an object (37) attachment surface of said thin plate section, determined by sight. A first adhesive is (inherent or the piezoelectric/electrostrictive elements would fall off) allowed to intervene between said piezoelectric/electrostrictive element (35 and or 36) and said thin plate section (31 and/or 32).

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Aoki (JP 2-119278). Aoki shows a piezoelectric/electrostrictive device (e.g. figs. 2 and 4) comprising: a pair of mutually opposing thin plate sections (9) made of metal (as understood from their function as electrodes) and a fixation section (13) for supporting said thin plate sections (9); an object (15) attached to forward end portions of said pair of thin plate sections (9); and one or more piezoelectric/electrostrictive elements (10) arranged on at least one thin plate section (9) of said pair of thin plate sections (9), wherein: an areal size of a surface of said object (15) opposed to said thin plate section is larger than an areal size of an object (15) attachment surface of said thin plate section, determined by sight. A first adhesive is (inherent or the piezoelectric/electrostrictive elements would fall off) allowed to intervene between said piezoelectric/electrostrictive element (10) and said thin plate section (9). Said object (15) is secured to said object attachment surface of said thin plate section (9) by the aid of a second adhesive. Note that if this were not so, the component would not be maintained between the plates (9).

Claim 1 rejected under 35 U.S.C. 102(e) as being anticipated by Miyazoe et al. (US 6,267,146). Miyazoe shows a piezoelectric/electrostrictive device (e.g. fig. 8) comprising: a pair of mutually opposing thin plate sections (222, 224) made of metal (col. 9, ll. 52-54) and a fixation section (220) for supporting said thin plate sections (222, 224); an object (also 220) attached to forward end portions of said pair of thin plate sections (222, 224); and one or more piezoelectric/electrostrictive elements (226a,

226b, 226c, 226d) arranged on at least one thin plate section (222 and/or 224) of said pair of thin plate sections (222, 224), wherein: an areal size of a surface of said object (220) opposed to said thin plate section is larger than an areal size of an object (220) attachment surface of said thin plate section, determined by sight

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakashima et al. (US 4,700,177) in view of Takeuchi et al. (US 6,091,182). Given the invention of Nakashima as noted above, he doesn't discuss an organic resin , glass, brazing material or solder for adhesion of his piezoelectric/electrostrictive elements to his thin plates. Takeuchi notes at column 25, lines 35-38 use of "organic resins, ... and glass" for adhering components in a piezoelectric/electrostrictive device. He doesn't show the structure of two thin plates, a fixation section or object between the thin plates. It would have been obvious to one having ordinary skill in the art to employ the adhesives noted by Takeuchi in the device of Nakashima at the time of his invention since these are known and readily available materials which are shown by Takeuchi to be used in the art.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining prior art cited reads on some aspects of the claimed invention.

Direct inquiry to Examiner Dougherty at (703) 308-1628.

tmd

tmd

November 14, 2001

THOMAS M. DOUGHERTY
PRIMARY EXAMINER
GROUP 2100

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